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ABSTRACT

Six Down's syndrome children (mean age 10 years) were observed in three settings: structured school, unstructured school, and home. Private speech utterances were recorded. Results showed that 13% of the utterances were private speech, with Ss varying from 11 to 53 utterances. Forty-nine percent of the utterances functioned as regulative/descriptive, 33% as affective, and 10% as fantasy/role playing. The utterances accompanying action usually described or encoded action (88%) rather than guiding the action (12%). Self verbalization literature stressed regulating/describing action, controlling self or others, and mediating. Private speech utterances of these Ss seldom functioned as controlling, regulating, or mediating, but often as encoding or describing an action after it had been initiated. (Author/SEH)

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Private Speech of Down's Syndrome Children in the School and Home

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Running Head: Private Speech

Private Speech of Down's Syndrome Children in the School and Home[1]

Private speech is defined in this study as audible talking that is not adapted or addressed to another person even in the presence of other people (Kohlberg, Yeager, & Hjertholm, 1968). Soviet investigations have hypothesized that as the child develops, private speech becomes covert inner speech which directs and guides actions and problem solving activities (Vygotsky, 1962). Luria's (1961) work with oligiophrenia, i.e. "profound mental underdevelopment which results from a massive cerebral lesion experienced in the intra-uterine period or in early childhood" (p. 127), suggests that more severely retarded individuals do not develop this regulatory role of language. The purpose of the present observational study of Downs' Syndrome children is threefold: 1) to establish the presence and function of private speech in these moderately retarded children; 2) to determine if use of private speech varies within three settings--structured school, unstructured school, and home; and 3) to compare the functions of private speech for these children with the functions stressed in the research literature on self-verbalization.

Self-verbalization has a role in three areas of research: private speech studies of regulating motor and problem solving behavior (c.f. Luria, 1961; Kohlberg, Yeager, & Hjertholm, 1968); verbal mediation studies of memory and learning (c.f. Borkowski & Wanschura, 1974); and self-control investigations focusing on impulsivity, resistance to temptation, delay of gratification, etc. (c.f. Pressley, 1979). These areas of investigation vary as to the degree of overt verbalization employed in the paradigms and the degree to which mentally retarded children verbalize.

Abstract

Six Down's Syndrome children were observed in three settings: structured school, unstructured school, and home. Private speech utterances were recorded. Results showed that 13 per cent of the utterances were private speech, with subjects varying from 11-53 such utterances. Forty-nine per cent of the utterances functioned as regulative/descriptive, 33% as affective, and 10% as fantasy/role playing. The utterances accompanying action usually described or encoded action (88%) rather than guiding the action (12%). Self-verbalization literature stresses regulating/describing action, controlling self or others, and mediating. Private speech utterances of these subjects seldom functioned as controlling, regulating, or mediating, but often as encoding or describing an action after it had been initiated.

Soviet investigations of private speech stress the regulatory function of language over motor behavior. More recent naturalistic studies of young children's private speech in problem solving and free play situations challenge the Soviet position that private speech is primarily regulatory (Beaudichon, 1973; Pellegrini, Note 1). Their data indicate that much private speech occurs after the action is initiated and serves an immediate descriptive role of encoding the on-going action and acting as a feedback mechanism, or in the case of free play, imposing order on a minimally structured environment. If private speech precedes the action, it is presumed to be self-guiding. Since Luria (1961) suggests that at least some types of mentally retarded people do not develop the regulatory function, this study seeks to determine if these Downs' Syndrome children use private speech to regulate and/or describe action.

Numerous verbal mediation studies have been conducted with mentally retarded subjects with the general findings that when mediators are available retarded children and adults are able to use them covertly to facilitate performance, but most "mediational findings indicate a limited production deficiency, especially with lower functioning retarded children. Production deficiencies become more obvious when tasks are designed to assess the transfer of mediational strategies" (Borkowski & Wanschura, 1974, p. 49). Mediational paradigms imply covert verbalization although some training procedures require the subject to overtly name or generate a mediator. For instance, Kellas, Ashcraft, & Johnson (1973) have shown that overt verbalization facilitates paired associate performance and reduces the production deficiency in mentally retarded subjects. It is of interest to find out from this observational study if these children spontaneously use any overt mediators.

The third area of self-verbalization research, self-control, has been reviewed recently by Pressley (1979). He concluded that 1) relevant verbalizations can

increase a child's motor control, 2) self-verbalizations increase resistance to temptation and delay of gratification if the content stressed temptation-inhibition or reward-orientation, and 3) self-verbalization decreases impulsive responding on a visual discrimination task, although there is little evidence of transfer to other tasks or a generalized improvement in intellectual functioning. Guralnick (1976) has shown the latter results for mildly to moderately retarded children. The verbalizations are usually overt in these paradigms, although verbal self-instruction training has shaped verbalization from overt to covert (e.g. Meichenbaum & Goodman, 1971). It is not clear from the research if thinking the same verbalizations would have similar effects (Pressley, 1979). Private speech verbalizations that function to control the self, others, and objects will be noted in this study.

Thus, the present study seeks answers to the following questions. Do Downs' Syndrome children use private speech? What are the functions of private speech for them? Does the setting affect private speech? Do these children spontaneously use private speech as it has been suggested they do or do not use it in the research literature on self-verbalization?

Method

Subjects

The children observed were six Down's Syndrome students attending classes for the trainable mentally retarded with a mean Leiter IQ of 41.8 (range 31-56), mean chronological age of 121.8 months (range 89-151 months), and a mean mental age of 47.2 months (range 42-53 months). Three subjects from each of two primary classrooms were chosen on the basis of comprehensibility of speech.

Procedure

Subjects were observed five times each in a structured class setting (direct instruction, discussions, exercising to a record, and doing seatwork

at his or her desk), unstructured class setting (before school, recess, lunch, and field trips), and at home (playing with puzzles and toy garage the experimenter brought, playing with own toys, interacting with household members) for five minutes per time. Time samples from the school settings were chosen randomly for each child as structured and unstructured activities occurred. Time samples in the home setting occurred sequentially with two or three minutes between samples. One observer wrote down all the utterances and noises the subject emitted, while the other observer recorded the nonverbal behavior and context, marking when in the sequence the verbal utterances occurred. Observers counterbalanced these two roles. As a reliability check, both observers recorded the same behavior. There was a mean of 92% agreement. This recording method was fairly accurate because the children had a low mean number of two or three word utterances per minute: 1.55 at school and 4.86 at home. The language samples were collected with other people present because Kohlberg et al. (1968) suggest that private speech in public will include only forms whose intention appear to be mainly self-stimulation rather than stimulation of others. A few utterances (.034%) were not clearly communicative or private speech; these were not included in the analyses. An utterance was defined as a natural break in the flow of speech.

Results and Discussion

Presence and Function of Private Speech

Thirteen per cent of the total 1198 utterances produced by the children were private speech (160 utterances). The subjects varied in the amount of private speech they emitted with a range of 11 to 53 utterances and a mean of 26.7. The private speech utterances were categorized into four classes: regulative/descriptive (describing internal and external events, self-guiding comments, commands, responding forms, naming), affective (singing, word play,

expressive words and sounds, laughs), fantasy/role playing (imitating persons, sound effects, conversing with objects and imaginary persons), and incomprehensible (mumbles and utterances that cannot be understood). This is an adaptation of Fuson's (Note 2) system. Of the 160 private speech utterances by the six children, 78 (48.8%) were regulative/descriptive, 54 (33.7%) were affective, 16 (10%) were fantasy/role playing, and 12 (7.5%) were incomprehensible. The agreement between two judges was 96%. See Table 1 for frequencies of the functions of private speech for each subject. These results parallel findings about private speech with young children (Fuson, Note 2; Copeland, 1979).

Insert Table 1 here

To determine if a private speech utterance functioned as self-guiding (Luria, 1961) or descriptive (Pelligrini, Note 1) each one was categorized as preceding the action or occurring after the action was initiated. Of the 94 regulative/descriptive and fantasy/role playing utterances, 60 could be clearly placed in the sequence of accompanying action. Seven preceded the action and 53 occurred after the action was initiated. As noted above, those utterances preceding the action can be categorized as self-guiding while those occurring after the action was initiated serve as description for feedback and structuring the environment. Eighty-eight per cent of the utterances were descriptive, while 12% were self-guiding. Thus, private speech serves both a regulative and descriptive function for these Downs' Syndrome children, with the descriptive being far more common. These findings are consistent with the pattern Pellegrini (Note 1) found for preschool children.

Setting

As can be seen in Table 1, children in the home setting produced more

private speech utterances; this is especially true for the functions of regulative/descriptive and fantasy/role playing. In both the unstructured school and the home settings affective private speech was higher than in the structured school situation. The percentage of total utterances that was private speech was higher in the unstructured school and home settings (15% and 13% respectively) than in the structured school setting (8.5%). These findings are not surprising given the demand in these classrooms during structured school time to do work quietly and respond verbally only when questions and instructions are directed toward the child.

Comparison of communicative, imitative, and private speech in the three settings also indicates that the structured school environment has more imitative and less private speech usage than the other two settings. See Table 2 for a summary of these results.

Insert Table 2 here

The number of utterances in the two school settings are fairly close, and much less than at home, but in the structured school situation the percentage of imitations (30%) is higher than in the unstructured setting (10%). This is probably due to the drilling, questioning, and prompting practices that are used by the teachers during instruction.

In summary, these results suggest that the subjects talk more and use private speech more at home. Both of the less structured settings at home and school had about the same percentage of private speech. This was a higher percentage than found in the structured school setting. This has implications for learning. If using private speech for giving oneself guidance and feedback, as it has been established these children are capable of doing, can facilitate learning, then these children will be learning better at home than at school.

This study, of course, does not establish that private speech usage facilitates learning, but it is a reasonable hypothesis to postulate. It may also be true that private speech would be more useful in some domains of learning than others, e.g. motor or perceptual that cognitive. These issues are as yet unanswered.

Congruence of Observations with Self-Verbalization Literature

The third purpose of this study was to determine if the three areas of research about self-verbalization were represented in private speech. To this end the two content categories of private speech, regulative/descriptive and fantasy/role playing, were classified as examples of verbal mediation (naming and other verbal strategies to aid memory and learning), Soviet and naturalistic private speech paradigms (regulating motor behavior, encoding ongoing behavior, or imposing order on a minimally structured environment), control (not only self-control, but also control of others, objects, and repeating prohibitions were included), and other (any private speech utterance that did not fit the above categories). The degree of agreement of the two judges was 96%. The results are summarized in Table 3. It was found that there were no spontaneous examples of overt verbal mediation, although one instance in which a child said "Tim" in anticipation of the child of that name being called next in the

Insert Table 3 here

morning role call perhaps indicates remembering an order in which names are called. This finding is consistent with the mediation literature for retarded children of this age. Few of the utterances were of a controlling function with the majority of those being control of other people or objects. Most private speech utterances were after the action was initiated indicating an encoding and descriptive role. Few utterances occurred before the action, and thus functioning as self-guiding. Thus, private speech utterances by these

Downs' Syndrome children seldom function as self-control, self-guiding, or verbally mediating, but there are numerous examples of the utterance fulfilling an encoding or descriptive function after the action was initiated.

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Footnote

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Table 1

Frequencies of Categories of

Private Speech by Downs' Syndrome

Children in Three Settings

	1[a]	2	3	4	5	6	Total
School Structured							
Regulative/Descriptive	1	7	0	0	3	0	11
Affective	3	3	0	1	0	0	7
Fantasy/Role playing	0	0	0	0	0	0	0
Incomprehensible	0	0	0	0	1	0	1
School Unstructured							
Regulative/Descriptive	1	4	1	4	2	1	13
Affective	8	2	4	4	1	1	20
Fantasy/Role playing	0	0	0	0	0	0	0
Incomprehensible	0	6	0	0	0	0	6
Home							
Regulative/Descriptive	0	1	9	0	34	10	54
Affective	0	8	8	0	8	3	27
Fantasy/Role playing	1	0	11	2	1	1	16
Incomprehensible	0	0	1	0	3	1	5
							160

[a]Subject ID number

Table 2

Communicative, Imitative, and Private Speech

by Six Downs' Syndrome Children in Three Settings

	School Structured	School Unstructured	Home
Total Utterances	223	246	729
Communicative	137	182	573
Imitative	67	25	54
Private	19	39	102
Percentage			
Communicative	61%	73%	78%
Imitative	30%	10%	7%
Private	8.5%	15%	13%
Mean No. Utterances Per Child in 25 Minutes			
Communicative	22.8	30.3	95.5
Imitative	11.6	4.1	9.0
Private	3.1	6.5	17.0
Total	37.5	40.9	121.5

Table 3

Private Speech Utterances as Examples of

Two Research Areas about Self-Verbalization

	Self-verbalization to control or encode action			Self-verbalization to control self, others, or objects			Other		
Regulative/Descriptive Utterances	P[a]	A	?	P	A	?	P	A	?
Structured	1	3	3	0	1	3	0	0	0
Unstructured	0	11	0	0	2	0	0	0	0
Home	3	24	22	0	0	0	0	0	5
Fantasy/Role Playing Utterances									
Structured	0	0	0	0	0	0	0	0	0
Unstructured	0	0	0	0	0	0	0	0	0
Home	3	12	1	0	0	0	0	0	0
Total	7	50	26	0	3	3	0	0	5

[a]P, A and ? refer to where the verbalization appears in the action sequence: preceding the action, occurring after the action is initiated, or unsure.